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Structural Change in OHIO Food Retailing

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CONTENTS

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STRUCTURAL CHANGE IN OHIO FOOD RETAILING

T. A. KLEIN AND D. I. PADBERG

INTRODUCTION

Many firms in the food marketing system have undergone substantial growth and expansion during the past two or three decades. There are several possible reasons for growth in these firms. Changing transportation, storage, and packaging technology has enabled mass production handling and processing of some commodities which had been treated as "perishables". Improved communication and greater accuracy in food product standardization have facilitated large-scale, more efficient handling of food products. The self-service retail outlet seems to be affected by technical scale-economies while the integrated supply system (available only to fairly large organizations) seems to have purchasing cost advantages.

The objective of the present study is to measure the growth of large retail organizations relative to their competition and to their market. Students of economic systems have attempted to learn the meaning of firm growth in terms of its effect upon social welfare generally and marketing efficiency particularly. The development of theory by which observed changes in the basic economic units of a system may be interpreted, fills many books. A few parts of this tradition will be drawn upon in this study.

In less than perfectly competitive conditions (all practical cases), equity shares of participants (prices) in any economic activity are determined by the activities of firms who face each other across a bargaining table (market) in the role of buyer or seller. The role of a particular firm varies according to the market, *i.e.* firms are buyers in some markets and sellers in others. When the size of a seller, for example, is large relative to the combined size of all sellers, this unit may become a leader in coordinating the activity of all sellers in their efforts to receive a higher equity share (relative to the buyers) in the economic activity for which they are all (buyers and sellers) jointly responsible. When the size of sellers is fairly uniform and small (the number of sellers being large) the chances of such coordinated bargaining are small. Thus, firm size has meaning in terms of its relation to the bargaining unit or "relevant market". This may be described as the smallest unit of competition which, if cornered, would limit

alternatives to at least some market participants on the opposite side of the table. As such, it may be considered the smallest independent unit of the competitive environment. It is in relation to this "relevant market" that firm size has meaning.

This institutional explanation of price determination suggests that analysts should be concerned about the way in which the bargainers on either side of the table are organized in terms of relative and absolute size, ability to impede entry of competitors, and opportunity to secure a preferential reception from buyers concerning outputs of particular sellers. These characteristics (relative and absolute size of buyers and sellers, entry barriers, and product differentiation) are believed to affect the outcome of bargaining in terms of prices determined, as well as the cost of bargaining. These elements may also affect the cost of production or processing by affecting incentives, scale economies, excess capacity, and progressiveness.

Two tentative conclusions may be useful in interpreting the economic meaning of structural change:

1. The size of a buyer or seller may not affect market behavior as much as market share. While many firms are growing, markets are also typically getting larger. Thus, the increased bargaining power gained by increasing market share typically is of smaller magnitude than might be suggested by observing firm growth.
2. Bargaining power is a relative thing—that is, increasing market shares of dominant sellers may have little effect on the outcome of bargaining as long as market shares of dominant buyers are also increasing.

This study is primarily descriptive in nature. It purports to observe the growth of food retailing firms and organizations in seven Ohio cities and to estimate changes in market shares of the largest four units during the 1950-60 period. These data are sought as part of an intensive study of market structure affecting the distribution of dairy products sponsored by the North Central Regional Technical Committee for Dairy Marketing Research. Since the data needed for the study of dairy market structure are equally applicable to study of any other distribution channel, they will be reported in a general form and no further specific reference to dairy marketing will be made. Comments regarding the methodology of this study are reserved for the appendix.

ANALYSIS

The basis for market share percentage in each market studied was total retail food store sales as reported by the Census of Business,

Table 1.—Estimated Total Retail Food Store Sales In Selected Ohio Marketing Areas, Even Years, 1948-1960 (Millions of Dollars).

Area	1948	1950[1]	1952[1]	1954	1956[1]	1958	1960[1]
Akron (Summit County)	103.81	112.25	120.69	129.12	144.55	159.98	175.41
Canton (City only)	35.90	36.99	38.09	39.19	43.88	48.58	53.28
Cincinnati (City only)	140.42	148.53	156.65	164 77	173.77	182.77	189.77
Cleveland (Lake and Cuyahoga Counties)	398.32	426.48	454.64	482.79	536.09	589.39	642.68
Columbus (Franklin County)	109.35	126.64	143.92	161.20	176.08	190.96	205.84
Dayton (Montgomery and Greene Counties)	106.23	118.20	130.18	142.15	155.20	168.20	181.20
Toledo (Lucas County)	104.62	109.31	114 01	118.71	132.93	147.15	161.37

[1]Linear interpolation or extrapolation.

Source: 1948, 1954, 1958 Census of Business, (Washington, D. C.: U. S. Department of Commerce).

United States Department of Commerce. These data are shown in Table 1. Using linear interpolation to provide data for intercensal years, it can be seen that in every market total food store sales increased greatly between 1948 and 1960. This increase ranged from 35.1 percent to 88.2 percent and averaged 61.0 percent for the seven markets. Such increases are the result of increased population, higher price levels, expanded merchandise lines, and the shift to higher priced foods. The markets with the lowest increase were Canton and Cincinnati. These two markets were defined for the purposes of this study as only that area within the corporate limits of the city. The rate of increase for the Standard Metropolitan Area (the definition employed for the other markets) would be expected to be higher.

The total number of food stores in each market decreased throughout the study. These reductions in store numbers, contrasted to market growth, are shown in Table 2. Population growth ranged from 15.5 percent to 36.0 percent for the standard metropolitan areas. Both the Canton and Cincinnati study areas experienced slight declines. In every case the number of stores per 1,000 of population declined. That index is lowest in Dayton and in Columbus, which experienced the highest growth in both food sales and in population.

The reduction in store numbers can be partly attributed to technological changes in food merchandising. For each market studied a

TABLE 2.—Number of Food Stores, Population, and Number of Stores Per 1000 People in Selected Ohio Marketing Areas, Even Years, 1950-1960.

	1950			1952			1954		
	Number of Stores	Population (000)	Stores Per 1000 Population	Number of Stores	Population[1] (000)	Stores Per 1000 Population	Number of Stores	Population[1] (000)	Stores Per 1000 Population
Akron (Summit County)	1075	410.0	2.62	1003	430.7	2.33	932	451.4	2.06
Canton (City only)	422	116.9	3.61	389	116.2	3.35	356	115.6	3.08
Cincinnati (City only)	1973	504.0	3.91	1801	503.7	3.58	1629	503.4	3.24
Cleveland (Lake and Cuyahoga Counties)	4772	1465.5	3.26	4418	1531.7	2.88	4064	1597.9	2.54
Columbus (Franklin County)	1280	503.4	2.54	1197	539.3	2.22	1114	575.2	1.94
Dayton (Greene and Montgomery Counties)	1044	457.3	2.28	973	499.2	1.98	902	523.1	1.72
Toledo Lucas County)	992	395.6	2.51	908	407.9	2.23	824	420.1	1.96

[1]Linear Interpolation.
Source: Tables 4, 5, 8, 10, 12, 13, and 15, 1950, 1960 Census of Population (Washington, D. C.: U. S Dept of Commerce).

TABLE 2. (Continued)—Number of Food Stores, Population, and Number of Stores Per 1000 People in Selected Ohio Marketing Areas, Even Years, 1950-1960.

	1956			1958			1960		
	Number of Stores	Population[1] (000)	Stores Per 1000 Population	Number of Stores	Population[1] (000)	Stores Per 1000 Population	Number of Stores	Population (000)	Stores Per 1000 Population
Akron (Summit County)	882	472.2	1.87	832	492.9	1.69	782	513.6	1.52
Canton City only)	330	114.9	2.87	304	114.3	2.66	278	113.6	2.45
Cincinnati (City only)	1574	503.2	3.13	1520	502.9	3.02	1466	502.6	2.92
Cleveland (Lake and Cuyahoga Counties)	3911	1664.2	2.35	3758	1730.4	2.17	3605	1796.6	2.01
Columbus (Franklin County)	1052	611.2	1.72	991	647.1	1.53	929	683.0	1.36
Dayton (Greene and Montgomery Counties)	857	555.9	1.54	812	588.8	1.38	767	621.7	1.23
Toledo (Lucas County)	778	432.4	1.80	732	444.6	1.65	684	456.9	1.50

[1]Linear Interpolation.
Source: Tables 4, 5, 8, 10, 12, 13, and 15, 1950, 1960 Census of Population (Washington, D. C.: U. S. Dept of Commerce).

table has been prepared which shows the number of stores operated by each of the important firms. Observation indicates that the well-entrenched firms have adjusted by eliminating smaller stores and building or remodeling larger stores. The result of this activity has been a rapidly increasing average annual sales per store.

Several other factors, common to most markets, also have contributed to the decline in store numbers. Among these are general consumer acceptance of the supermarket and increased consumer mobility, combined with the growth of shopping centers which provide parking and other services for the auto-borne shopper. From the standpoint of the individual firm, the economies of super-market operation hastened the transition from small self-serve and service units to the larger, more efficient stores which dominate the food industry today.

Akron

During the decade of the 50's, the Akron Metropolitan Area experienced rapid economic growth. Among the markets considered, its rate of increase in total food sales (56.3 percent) is surpassed only by Columbus and Dayton. The competitive structure of food retailing has also undergone a considerable change. Table 3 indicates the number of stores operated by Akron's principle food retailers during this decade.

TABLE 3.—Number of Stores Operated by Selected Corporate Food Retailers in Akron, Ohio (Standard Metropolitan Area), Even Years, 1950-1960.

Firm	1950	1952	1954	1956	1958	1960
A	20	19	16	15	18	19
B	42	33	28	24	27	26
C	—[1]	1	1	1	3	7
D	—[1]	1	1	1	5	5
E	10	11	10	8	14	14
F	—[1]	—[1]	2	2	6	9
G	7	9	10	8	—[2]	—[2]

[1]Market entry had not yet taken place.

[2]Market exit had taken place.

Source: 1950, 1952, 1954, 1956, Cleveland Plain Dealer. 1958, 1960, Akron Beacon Journal.

Table 4 shows the changes in sales concentration among various seller groups during this period, corresponding to some reduction in

TABLE 4.—Cumulative Number of Stores, Estimated Sales, and Estimated Market Share of the Largest Four Food Retailers, All Chains, Multi-Store Firms, and All Firms in Akron, Ohio (Standard Metropolitan Area), Even Years, 1948-1960.

Retailer	1948			1950			1952			1954		
	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share
			percent			percent			percent			percent
Largest 4 Firms	——[1]	——[1]	——[1]	79	$ 36.9	33.0	72	$ 44.3	36.7	55	$ 50.4	39.0
All Chains	116	$ 33.8	32.6	133	43.6	38.8	140	53.4	44.2	141	63.1	48.9
All Multi-Store Firms	221	52.9	51.0	209	59.6	53.1	195	66.6	55.2	184	74.0	57.3
All Firms	1147	103.8	100.0	1075	112.2	100.0	1003	120 7	100.0	932	129.1	100.0

TABLE 4. (Continued)—Cumulative Number of Stores, Estimated Sales, and Estimated Market Share of the Largest Four Food Retailers, All Chains, Multi-Store Firms, and All Firms in Akron, Ohio (Standard Metropolitan Area), Even Years, 1948-1960.

Retailer	1956			1958			1960		
	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share
			percent			percent			percent
Largest 4 Firms	55	$ 52.5	36.3	65	$ 84.6	52.9	68	$ 90.5	51.7
All Chains	153	80.4	55.6	162	99.5	62.2	170	120.9	68.9
All Multi-Store Firms	189	89.8	62.1	192	107.0	66.9	194	125.8	71.7
All Firms	882	144.6	100.0	832	160.0	100.0	782	175.4	100.0

[1]Not available.

Source: Computations based on Table 3, Census of Business (Washington, D. C.: U. S. Department of Commerce), This Week Biennial Grocery Study (New York: United Newspapers Magazine Corp.), Moody's Industrial Manual (New York: Moody's Investor's Service, Inc.), Company Records

total store numbers[1]. It clearly indicates that as total food sales increased over time, the market share of the food chains also increased at the relative expense of the independent. In Akron, between 1950 and 1960, total food sales increased by 56.3 percent, while food sales by all food chains increased by 177.3 percent. As a result, the market share of all food chains increased during the decade from 38.8 percent to 68.9 percent.

A substantial portion of the structural change in Akron during the period studied took place between 1956 and 1958. Table 4 shows sizeable jumps in market share for the first two categories. A brief perusal of Table 3 will indicate what is undoubtedly the major cause of these jumps. During the early part of the study period, the major chains in the market had consolidated their store operations. The resulting net reduction in store numbers was offset with respect to total sales by substantial increases in average store sales. In 1956, the low-point in store numbers by these firms was reached. The period from 1956 to 1958 is one of great expansion in store numbers. This expansion combined with the continued increase in volume per store appears to be the proximate cause of the change in market share.

Another point of interest in considering the Akron market is the question of entry and exit. Once more resorting to Table 3, it is noted that three sizeable firms invaded the Akron market during the study period, while only one exited. The entrants quickly established themselves as important factors; they had strong financial backing and were skillful merchandisers. The single exant was strong only with respect to the relatively atomistic nature of the market during the early 50's. When confronted by the competition of firms with new and remodeled facilities and aggressive merchandising policies it closed its Akron operations.

Canton

Canton is one of the two markets, which, for purposes of this study, were defined as the area within the corporate limits of the central city of concern. This definition, in the case of Canton was used for two reasons. 1) The Canton Standard Metropolitan Area, Stark County, contains three relatively distinct markets: Canton, Massillon, and Alliance. Several large food retailers operated in only one of these

[1]The cumulative presentation of Tables 4, 5, 8, 10, 12, 13, and 15, is likely to mislead the reader in one respect The "largest four" classification is not necessarily wholly contained in the "all chains" classification, though in all cases the "all chains" category represents a larger market share than the "largest four firms". In four instances, firms with less than four stores (the minimum for a "chain" as defined in this report) achieved sufficient market penetration to rank above one ore more chain firms in a particular market.

TABLE 5.—Cumulative Number of Stores, Estimated Sales and Estimated Market Share of the Largest Four Corporate Food Retailers, and All Firms, in Canton, Ohio (Corporate Limits only), Even Years, 1948-1960.

Retailer	1948			1950			1952			1954		
	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share
			percent			percent			percent			percent
Largest 4 Firms	——[1]	——[1]	——[1]	13	$ 7.1	19.2	12	$ 7.6	20.0	10	$10.1	25.9
All Firms	456	$35.9	100.0	422	$37.0	100.0	389	$38.1	100.0	356	$39.2	100.0

TABLE 5. (Continued)—Cumulative Number of Stores, Estimated Sales and Estimated Market Share of the Largest Four Corporate Food Retailers, and All Firms, in Canton, Ohio (Corporate Limits only), Even Years, 1948-1960.

Retailer	1956			1958			1960		
	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share
			percent			percent			percent
Largest 4 Firms	11	$14.3	32.5	11	$15.8	32.6	12	$18.3	34.3
All Firms	330	$43.9	100.0	304	$48.6	100.0	278	$53.3	100.0

[1]Not available.

Source: Computations based on Table 6, Census of Business (Washington, D. C.: U. S. Department of Commerce), This Week Biennial Grocery Study (New York: United Newspapers Magazine Corp.), Moody's Industrial Manual (New York: Moody's Investor's Service, Inc.), Company Records.

TABLE 6.—Number of Stores Operated by Selected Corporate Food Retailers in Canton, Ohio (Corporate Limits only), Even Years, 1950-1960.

Firm	1950	1952	1954	1956	1958	1960
A	5	5	5	5	5	4
B	1	1	1	1	1	1
C	1	0	1	2	2	2
D	4	4	3	3	2	3
E	—[1]	—[1]	—[1]	—[1]	2	3
F	3	2	2	1	3	1

[1]Market entry had not yet taken place.
Source: Canton Repository.

cities; none operated in all three. Consumers are not likely to substitute among stores in these cities because of the considerable amount of rural land between and among these markets. Discussion with men familiar with these markets leads the authors to believe that behavior in any of them is comparatively independent of behavior in the others, 2) Insufficient historical data were available for the "city zone", which would approximate the theoretical definition of a market.

Food sales in the Canton market thus defined increased by 48.4 percent during the study period. It is reasonable to assume that this increase might be larger if suburban areas not within the city limits were included. This statement is made in light of the number of new stores opened and the disproportionate population growth in these areas. These facts, however, do not invalidate the data for purposes of discovering changes in sales concentration.

Canton is similar to Akron in that a number of firms aggressively vie for the consumer's food dollar. While sales and market share figures are not available for an all chains category, the relative growth here would be expected to parallel that in Akron. In the Canton food market, sales increased from 1950 to 1960 by 157.7 percent for the largest four firms. Here, as in most of the markets, the various firms' sales ranks shifted considerably. Thus, it would appear that the competition among the leaders tended to take sales away from the smaller firms.

Among the leaders in 1960, only one firm had entered the market, as shown in Table 6. In addition, one firm expanded its operations considerably both within the city limits and in the suburban areas. No firms exited from the market, although one did liquidate its holdings in 1961. Entry and expansion have undoubtedly contributed to increased competition in Canton, although small firms have generally lost sales to the leaders.

Cincinnati

Defining the Cincinnati market presents several problems. The standard metropolitan area, while containing a relatively dense population throughout, is divided by the Ohio River. Although the river does not effectively separate those areas in Kentucky near the downtown area from Cincinnati proper, the areas in the western portion of the metropolitan area on both sides of the river are isolated from each other and, to a lesser extent, are isolated from the eastern areas across the river. In addition, data sources for the Kentucky region were severely limited. Also somewhat limited were sources for surburban Hamilton County. As a result, it was decided to limit the investigation, as in the case of Canton, to the area within the corporate limits of the central city.

The structural changes in Cincinnati are somewhat different from the two markets previously considered. Two firms dominate this market. The chief competitors for these largest two firms were independent grocers, small or conservative local chains, and beachhead supermarkets from neighboring cities. Table 8 marks the Cincinnati retail food market as a relatively atomistic one when compared with the others included in this study.

Cincinnati has experienced somewhat top heavy growth with respect to sales increases. Between 1950 and 1960, total food sales increased by 27.8 percent; sales of the largest four firms increased by 61.0 percent. The increment of market share added by the third and fourth ranked firms decreased steadily from 7.3 percent in 1950, to 4.6 percent in 1960.

TABLE 7.—Number of Stores Operated by Selected Corporate Food Retailers in Cincinnati, Ohio (Corporation), Even Years, 1950-1960.

Firm	1950	1952	1954	1956	1958	1960
A	8	7	7	6	6	6
B	14	15	15	15	15	15
C	45	44	39	34	32	29
D	—[1]	—[1]	—[1]	—[1]	1	1
E	26	9	7	1	1	1
F	—[1]	—[1]	—[1]	1	1	1

[1]Market entry had not yet taken place.

Source: Cincinnati City Directory (Cincinnati, Ohio: Williams Directory Company)

TABLE 8.—Cumulative Number of Stores, Estimated Sales and Estimated Market Share of the Largest Four Corporate Food Retailers, and All Food Stores in Cincinnati, Ohio (Corporate limits only), Even Years, 1948-1960.

Retailer	1948			1950			1952			1954		
	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share
			percent			percent			percent			percent
Largest 4 Firms	——[1]	——[1]	——[1]	93	$ 42.8	28.8	75	$ 52.7	33.7	68	$ 56.7	34.3
All Firms	2145	$140.4	100.0	1973	$148.5	100.0	1801	$156.6	100.0	1629	$164.8	100.0

TABLE 8. (Continued)—Cumulative Number of Stores, Estimated Sales and Estimated Market Share of the Largest Four Corporate Food Retailers, and All Food Stores in Cincinnati, Ohio (Corporate limits only), Even Years, 1948-1960.

Retailer	1956			1958			1960		
	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share
			percent			percent			percent
Largest 4 Firms	56	$ 64.5	37.1	54	$ 68.1	37.3	51	$ 68.9	36.3
All Firms	1574	$173.8	100.0	1520	$182.8	100.0	1466	$189.8	100.0

[1]Not available.

Source: Computations based on Table 7, Census of Business (Washington, D. C.: U. S. Department of Commerce), This Week Biennial Grocery Study (New York: United Newspapers Magazine Corp.), Moody's Industrial Manual (New York: Moody's Investor's Service, Inc.), Company Records

Table 7 shows that during this time, there were two "major" entrants in the market. Among the major firms included in that list, there were no actual exits, although one firm was drastically reduced in size and changed owners. Another firm, once relatively large but never among the top four during the period studied and therefore not included in Table 7, liquidated its retail holdings in 1956. In both of these latter cases, the firms did not adjust physical facilities and merchandising policies to a changing technology. Instead, they gradually eliminated stores without opening new ones.

Cleveland

Cleveland is among the largest cities in the United States, as well as being the largest city in Ohio. For this reason, investigation of structural changes here should be of particular interest.

Despite a very sizeable base, total food sales increased by 50.7 percent in metropolitan Cleveland from 1950 to 1960. Comparing the rates of change in the various size categories produces a picture similar to Akron rather than to Cincinnati—although the degree of change is not as great. It should be recognized, however, that a city the size of Cleveland can support many firms which, while small in this context, would loom large in the competitive makeup of any other Ohio city. Thus, although Table 9 involved only five firms which ranked among the largest four in any single year during the study period, several other firms, which qualify as chains on the basis of purely local operations, do substantial amounts of business, and therefore would have to be included in a study devoted to market performance.

The concern of this study, however, largely focuses on the market share held by the largest four firms, relegating all lesser firms to more

TABLE 9.—Number of Stores Operated by Selected Corporat Food Retailers in Cleveland, Ohio (Standard Metropolitan Area), Even Years, 1950-1960.

Firm	1950	1952	1954	1956	1958	1960
A	43	50	48	48	48	56
B	145	105	95	88	80	69
C	11	15	13	14	20	—[1]
D	54	38	28	29	32	32
E	10	11	14	15	20	33

[1]Market exit had taken place.

Source: Cleveland Plain Dealer.

general categories. Table 10 indicates the number of stores, estimated sales and estimated share of market accruing to various categories of firms in the years studied.

Analysis of this table shows that sales increased by 122.7 percent for the largest four firms between 1950 and 1960. The rate of sales increase for all chains was 102.0 percent, and for multi-unit firms, 110.1 percent. The absolute increase in market share was 13.7 percent for the largest four firms, 14.7 percent for all chains, and 18.0 percent for all multi-unit firms. In contrast to these figures, total sales for single unit operations increased from $232 million in 1950, to $234 million in 1960, an increase of but 0.9 percent. During this same period, the market share of this group fell from 54.4 percent to 36.4 percent.

As indicated in Table 9, some of the larger firms have substantially reduced their number of outlets, while others have increased. Table 9 also indicates that there were no new entries among the major firms during the period studied. The single exit was more the result of corporate organization difficulties than of a lack of marketing success. In fact, many of the stores once owned by the exant are still being operated with apparent success by independent owners.

These facts tend to indicate that Cleveland is a relatively stable market. Certainly most of the major firms, as well as some lesser ones, have progressed rapidly, often at the expense of less fortunate independents. It is not surprising, however, in light of the size of this market, that concentration has taken place at a rather steady rate instead of with the fluctuation that has characterized some other markets. Whether or not this bespeaks a kind of maturity in the market place is open for discussion. Certainly it is only a partial basis for evaluating market performance and this should be the criteria for evaluating any given structural complex.

Columbus

The growth of total food sales (62.5 percent) in Columbus during the study period is larger than in any of the other markets investigated. In 1960, 27.4 percent fewer stores accounted for this increased sales volume than in 1950. Such increased concentration with respect to store numbers is quite typical of the study markets, although the percentage differences are not as great in other cities.

Table 11 indicates the store numbers for the leading firms in the Columbus market. Note especially that there were no entries and no exits among the leaders during the decade studied. This fact, together with the relatively high concentration throughout the period, as seen

TABLE 10.—Cumulative Number of Stores, Estimated Sales, and Estimated Market Share of the Largest Four Corporate Food Retailers, All Chains, All Multi-Unit Firms, and All Firms in Cleveland, Ohio (Standard Metropolitan Area), Even Years, 1948-1960.

Retailer	1948			1950			1952			1954		
	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share
			percent			percent			percent			percent
Largest 4 Firms	——[1]	——[1]	——[1]	252	$121.7	28.5	204	$152.8	33.6	185	$181.1	37.5
All Chains	404	$ 170.8	42.9	397	184.6	43.3	384	198.7	43.7	370	212.7	44.1
All Multi-Unit Firms	603	178.6	44.8	563	194.5	45.6	517	211.0	46.4	476	227.8	47.2
All Firms	5126	3398.3	100.0	4772	426.5	100.0	4418	454.6	100.0	4064	482.8	100.0

TABLE 10. (Continued)—Cumulative Number of Stores, Estimated Sales, and Estimated Market Share of the Largest Four Corporate Food Retailers, All Chains, All Multi-Unit Firms, and All Firms in Cleveland, Ohio (Standard Metropolitan Area), Even Years, 1948-1960.

Retailer	1956			1958			1960		
	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share
			percent			percent			percent
Largest 4 Firms	180	$200.0	37.3	180	$250.0	42.4	190	$271.0	42.2
All Chains	416	261.1	48.7	463	314.8	53.4	507	372.8	58.0
All Multi-Unit Firms	512	282.0	52.6	546	342.4	58.1	573	408.7	63.6
All Firms	3911	536.1	100.0	3758	589.4	100.0	3605	642.7	100.0

[1]Not available.

Source: Computations based on Table 9, Census of Business, (Washington, D. C.: U. S. Department of Commerce), This Week Biennial Grocery Study (New York: United Newspapers Magazine Corp.), Moody's Industrial Manual (New York: Moody's Investor's Service, Inc.), Company Records.

TABLE 11.—Number of Stores Operated by Selected Corporate Food Retailers in Columbus, Ohio (Standard Metropolitan Area), Even Years, 1950-1960.

Firm	1950	1952	1954	1956	1958	1960
A	9	7	7	7	8	11
B	11	14	16	18	18	17
C	7	9	10	11	13	15
D	2	2	2	3	2	2
E	40	30	23	22	19	19

Source: 1950-1956, Columbus Telephone Directory (Columbus, Ohio: Ohio Bell Telephone Co.). 1958,1960, Columbus Dispatch.

in Table 12, suggests that the Columbus market is more structurally stable than the other markets studied; that is, the great strides in concentration took place prior to the study period.

Despite the comparatively high concentration of sales in 1950, the market share of the various size categories pushed upward throughout the period. Compared with the 62.5 percent increase in total sales, the sales of the largest four firms increased by 137.6 percent. The sales of all chains increased by 104.9 percent. One voluntary group has been very successful in this competition. Local authorities estimate its market share in 1962 as about 6 percent—roughly comparable to the fourth largest firm in this market. The continuing domination of a single firm and the increasing concentration of sales among the top four firms place this market clearly in the "highly concentrated" category relative to other markets studied.

Dayton

Between 1950 and 1960 total food sales in the Dayton market increased by 53.3 percent. In the face of this expanding market, the largest four firms increased their market share by 13.5 percent. An increase of 120.3 percent was observed with respect to the sales of these firms as shown in Table 13.

This market is a good example of structural change with respect to store size and numbers. Table 14 gives the number of stores operated by the five leading food retailers in the Dayton market. These totals for the years studied are: 1950, 56; 1952, 59; 1954, 54; 1956, 54; 1958, 55; 1960, 61. This is a net increase of but five stores in 10 years, or seven stores from the low of 1954 and 1956, despite the sizeable expansion in total sales.

TABLE 12.—Cumulative Number of Stores, Estimated Sales, and Estimated Market Share of the Largest Four Corporate Food Retailers, All Chains, Multi-Unit Firms, and All Firms in Columbus, Ohio (Standard Metropolitan Area), Even Years, 1948-1960.

Retailer	1948			1950			1952			1954		
	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share
			percent			percent			percent			percent
Largest 4 Firms	——[1]	——[1]	——[1]	67	$ 46.6	36.8	60	$ 57.5	40.0	56	$ 69.5	43.1
All Chains	127	$ 46.9	42.9	118	57.4	45.3	108	68.6	47.7	98	80.7	50.0
All Multi-Unit Firms	216	53.4	49.9	183	65.8	52.0	153	79.2	55.0	126	93.5	58.0
All Firms	1363	109.4	100.0	1280	126.6	100.0	1197	143.9	100.0	1114	161.2	100.0

TABLE 12. (Continued)—Cumulative Number of Stores, Estimated Sales, and Estimated Market Share of the Largest Four Corporate Food Retailers, All Chains, Multi-Unit Firms, and All Firms in Columbus, Ohio (Standard Metropolitan Area), Even Years, 1948-1960.

Retailer	1956			1958			1960		
	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share
			percent			percent			percent
Largest 4 Firms	58	$ 86.4	49.1	58	$ 98.4	51.5	62	$110.7	53.8
All Chains	91	93.0	52.6	84	105.3	55.1	77	117.6	57.1
All Multi-Unit Firms	124	101.8	57.8	121	110.2	57.7	117	118.6	57.6
All Firms	1052	176.1	100.0	991	191.0	100.0	929	205.8	100.0

[1]Not available.

Source: Computations based on Table 11, Census of Business (Washington, D. C.: U. S. Department of Commerce), This Week Biennial Grocery Study (New York: United Newspapers Magazine Corp.), Moody's Industrial Manual (New York: Moody's Investor's Service, Inc.), Company Records.

TABLE 13.—Cumulative Number of Stores, Estimated Sales, and Estimated Market Share of the Largest Four Corporate Food Retailers, All Chains, All Multi-Unit Firms, and All Firms in Dayton, Ohio (Standard Metropolitan Area[1]), Even Years, 1948-1960.

Retailer	1948			1950			1952			1954		
	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share
			percent			percent			percent			percent
Largest 4 Firms	——[2]	——[2]	——[2]	49	$ 36.4	30.8	52	$ 47.8	36.7	48	$ 52.4	36.8
All Chains	132	$ 45.0	42.3	120	52.7	44.6	109	60.5	46.5	98	69.1	48.6
All Multi-Unit Firms	193	54.9	51.7	172	62.4	52.8	154	69.5	53.4	136	77.1	54.2
All Firms	1115	106.2	100.0	1044	118.2	100.0	973	130.2	100.0	902	142.1	100.0

TABLE 13. (Continued)—Cumulative Number of Stores, Estimated Sales, and Estimated Market Share of the Largest Four Corporate Food Retailers, All Chains, All Multi-Unit Firms, and All Firms in Dayton, Ohio (Standard Metropolitan Area[1]), Even Years, 1948-1960.

Retailer	1956			1958			1960		
	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share
			percent			percent			percent
Largest 4 Firms	48	$ 57.1	36.8	49	$ 66.0	39.2	54	$ 80.2	44.3
All Chains	——[2]	——[2]	——[2]	——[2]	——[2]	——[2]	——[2]	——[2]	——[2]
All Multi-Unit Firms	——[2]	——[2]	——[2]	——[2]	——[2]	——[2]	——[2]	——[2]	——[2]
All Firms	857	155.2	100.0	812	168.2	100.0	767	181.2	100.0

[1]Metropolitan area defined for purposes of this study as Greene and Montgomery Counties.
[2]Not available.
Source: Computations based on Table 14, Census of Business (Washington, D. C.: U. S. Department of Commerce), This Week Biennial Grocery Study (New York: United Newspapers Magazine Corp.), Moody's Industrial Manual (New York: Moody's Investor's Service, Inc.), Company Records.

TABLE 14.—Number of Stores Operated by Selected Corporate Food Retailers in Dayton, Ohio (Standard Metropolitan Area), Even Years, 1950-1960.

Firm	1950	1952	1954	1956	1958	1960
A	7	7	6	6	6	8
B	6	8	8	8	8	8
C	7	7	8	6	6	7
D	27	27	20	19	19	19
E	9	10	12	15	16	19

Source: Dayton City Directory (Cincinnati, Ohio: Williams Directory Co.).

In at least one respect, it is unfortunate that census data were not available regarding chains and multi-unit firms for the latter portion of the decade. (The census definition of the Dayton Standard Metropolitan Area was changed in 1958. In view of the succeeding remarks, linear extrapolation was felt to be inaccurate). In Dayton, one voluntary group is reported to have been extremely successful. Its activities may be characterized as aggressive rather than defensive—a term which describes the operations of many groups of independents. It is estimated that the market share of this group is sufficient for it to be ranked among the largest four. In this light, then, the concentration is higher than the study figures indicate. Retailer growth patterns are more dynamic since the group was founded during the study period.

As Table 14 indicates, there were no exits or entries among the leading corporations during the period studied. The lack of entrants may be explained by a relatively soft price situation (a condition which did not deter entrants in Toledo, for example). It might be conjectured, with a few strands of evidence, that suppliers courted the new cooperative group, which, in turn, attracted new customers through strategic price cutting, thus making the market unattractive to sizeable outsiders. On the other hand, sources familiar with the market report that the largest firms have not been as aggressive as they might have been. Such a comment mitigates the previous remark. In any case, the differences of opinion among equally qualified observers indicate that further investigation is in order.

Table 2 shows that the number of food stores per 1,000 population is considerably lower in Dayton than in any other market studied. Columbus is next to Dayton among the markets studied in having a low number of food stores relative to population. If there is a common

TABLE 15.—Cumulative Number of Stores, Estimated Sales, and Estimated Market Share of the Largest Four Corporate Food Retailers, All Chains, All Multi-Unit Firms, and All Firms in Toledo, Ohio (Standard Metropolitan Area), Even Years, 1948-1960.

Retailer	1948			1950			1952			1954		
	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share
			percent			percent			percent			percent
Largest 4 Firms	——[1]	——[1]	——[1]	40	$ 23.6	21.6	43	$ 36.7	32.1	34	$ 37.2	31.4
All Chains	97	$ 42.5	40.6	102	47.5	43.4	91	52.8	46.3	86	58.5	49.2
All Multi-Unit Firms	116	44.6	42.6	121	49.5	45.3	107	54.7	48.0	101	60.2	50.7
All Firms	1076	104.6	100.0	992	109.3	100.0	908	114.0	100.0	824	118.7	100.0

TABLE 15. (Continued)—Cumulative Number of Stores, Estimated Sales, and Estimated Market Share of the Largest Four Corporate Food Retailers, All Chains, All Multi-Unit Firms, and All Firms in Toledo, Ohio (Standard Metropolitan Area), Even Years, 1948-1960.

Retailer	1956			1958			1960		
	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share	Number of Stores	Sales (mil.)	Market Share
			percent			percent			percent
Largest 4 Firms	37	$ 48.9	36.8	45	$ 60.1	40.9	46	$ 65.0	40.3
All Chains	84	69.7	52.5	81	82.1	55.8	77	95.3	59.0
All Multi-Unit Firms	98	71.4	53.7	94	83.5	56.7	89	96.3	59.7
All Firms	778	132.9	100.0	732	147.2	100.0	684	161.4	100.0

[1]Not available.

Source: Computations based on Table 16, Census of Business, (Washington, D. C.: U. S. Department of Commerce), This Week Biennial Grocery Study (New York: United Newspapers Magazine Corp.), Moody's Industrial Manual (New York: Moody's Investor's Service, Inc.), Company Records.

cause to these low store densities, it might possibly be found in the relatively rapid population growth which has characterized both markets.

Toledo

Toledo, like Columbus, experienced increased sales concentration throughout the study period, although at a lower level. While total food sales increased 47.7 percent in the Toledo market, sales of the largest four firms almost tripled, an increase of 175.4 percent. It is noteworthy that the percentage increase in total sales was the lowest among the study markets defined as the Standard Metropolitan Area. The economic reasoning behind this fact is probably not related to this discussion, but the statistic itself may help explain the sizeable increase in concentration. Table 15 shows the market share data for each category in each year studied. Between 1950 and 1960, the share of market garnered by the largest four firms increased by 18.7 percent, by all chains, 15.6 percent, and by all multi-unit firms, 14.4 percent.

Table 16 notes that two leading firms entered the market during the decade studied. One of these entries was an established firm invading from outside. The other entry involved the consolidation of several independent grocers and subsequent corporate expansion. Still another "outside" firm purchased a local chain. Subsequent to the study, another large chain established a small scale beachhead in Toledo. No exits took place among the leaders in the course of the study. However, one leader reduced operating scale over a period of

TABLE 16.—Number of Stores Operated by Selected Corporate Food Retailers in Toledo, Ohio (Standard Metropolitan Area), Even Years, 1950-1960.

Firm	1950	1952	1954	1956	1958	1960
A	12	14	11	12	17	16
B	5	5	5	6	6	5
C	1	3	3	3	2	2
D	—[1]	6	5	7	6	8
E	2	2	3	4	5	6
F	21	20	15	15	17	16
G	—[1]	—[1]	—[1]	—[1]	4	4

[1]Market entry had not yet taken place.

Source: 1950-1956 Toledo Telephone Directory (Columbus, Ohio: Ohio Bell Telephone Co.). 1958-1960 Toledo Blade.

time, part of which reduction was prior to the study terminus. Since 1960, two leaders have completely liquidated holdings in Toledo.

It is difficult to explain this relative volatility among the leading market participants. The entries tend to deny that growth in market potential was inadequate for successful operation. Further, the firm rankings shifted considerably—although the relationships among the categories appear relatively constant. On the other hand, the exits and reduction of operations by fairly large firms suggest that the increased concentration was effected with losses to large as well as to small firms. The kind of competitive behavior which would create such a situation and its effect on over-all market performance bear additional study.

IMPLICATIONS

Observations reported in this study indicate clearly that the trend toward fewer and larger retail food store firms has continued rather steadily in all major Ohio markets. While the rate of increase in market shares seems to be declining, an extrapolation of the observed growth patterns would lead to a prediction that there may be noticeably more consolidation of this market structure during the present decade. What effect can this structural change be expected to have upon food marketing?

The market between the retail food seller and the final consumer may be affected by this trend. As market share of dominant firms increase, promotion may have lower unit costs since advertising and selling expenditures are spread over larger volume. As such, the observed trend might suggest changes in competitive behavior. On the other hand, in consumer-store relationships, the metropolitan area may not be the appropriate "relevant market". Small multi-unit firms or chains may have consumer acceptance on the "north side" but be rather small in the metropolitan area. In fact, concentration in these smaller consumer-store "relevant markets" may be much higher and may not change as concentration in the metropolitan area increases. Such an example could be found where a national chain absorbs a local multi-unit firm. Concentration to consumers does not change while concentration in the metropolitan area increases. Therefore, the consumer, in transactions with food store chains, may be little affected by the city-wide trend toward higher concentration (larger market share controlled by the largest firms).

How will wholesale operations be affected by this trend toward larger fewer firms in a metropolitan area? Food processors compete

for outlets throughout the city, not just a part of it. The absolute increase in the observed share of market controlled by the largest four firms, averaging 15 percent during the 1950's, together with the expanded potential of the markets themselves, is a significant finding. For the food processors who are not serving these growing store organizations, it means a loss of market outlets. Processors who supply these growing outlets find that, while they grow, their bargaining position is weakened because they have no attractive alternatives. The loss of a single large account would have a devastating effect upon their unit operating costs. These large store organizations have an added bargaining lever in that their size makes it feasible for them to threaten to integrate their supply and completely by-pass their previous food processor-supplier. In addition to threatening to integrate their supply, food retail firms have gained considerable experience in actually processing and packaging under their own brands in an integrated organization.

It follows from this discussion that the bargaining between food processor-wholesaler and food retailer may be the part of the food distribution channel most directly affected by the structural changes observed in the food retailing industry. In order to assess these effects upon marketing efficiency, the changing structure of the processing industries must be understood, as well as the competitive behavior of both retailers and processor-wholesalers. The structure of food processing industries is changing. Developments at the retail food store level of the marketing system may force some changes among processors, and technological evolution also encourages structural change.

In order to know where we are and to predict and direct where we are going, we must understand developments and counter-developments and be able to measure their effects. This effort does not purport to complete this journey. It is hoped that data provided herein may be a useful beginning.

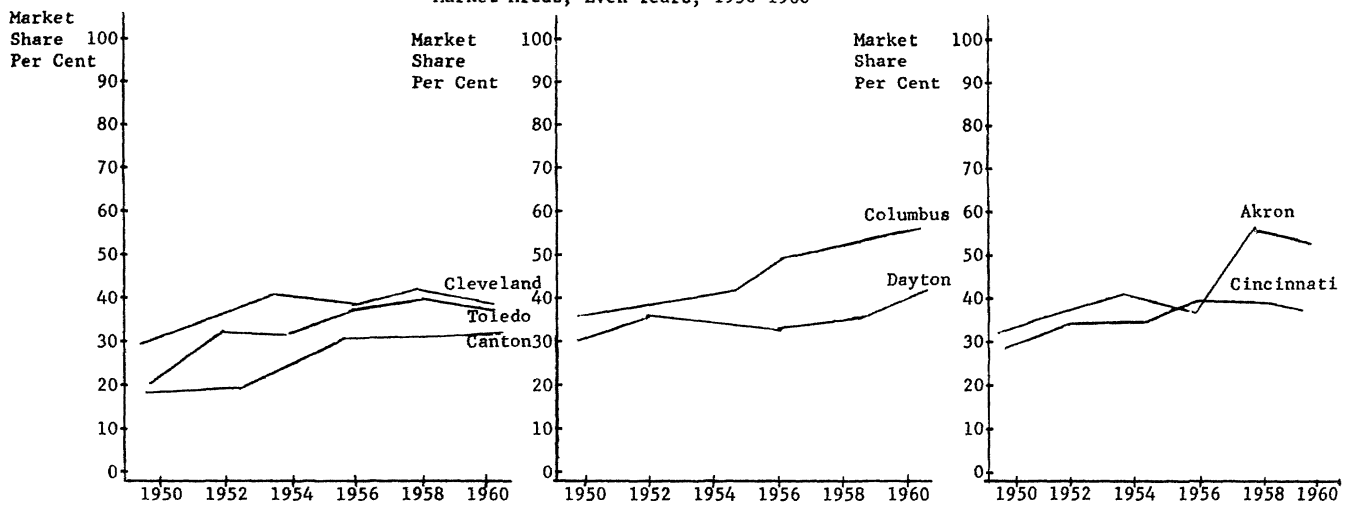
SUMMARY

The objective of this study is to observe structural change in the retail food store industry. Combined market shares of the largest four firms were obtained for seven Ohio markets biennially from 1950 to 1960. Market shares for other chains (four or more stores) and multi-unit firms were also obtained where possible.

Figure 1 describes the changes in the share held by the largest four firms in each market over time. This particular category is especially crucial for these reasons: (1) It generally includes the most aggressive

Figure 1

Cumulative Market Share of the Largest Four Corporate Food Retailers by Size According to Number of Stores in Selected Ohio Market Areas, Even Years, 1950-1960



Source: Tables 4, 5, 8, 10, 12, 13, and 15

TABLE 17.—Market Share (Even Years, 1950-1960), Total Sales (1950, 1960) and Percentage of Increase (1950-1960) of the Largest Four Corporate Food Retailers in Selected Ohio Markets.

Year	Akron	Canton	Cincinnati	Cleveland	Columbus	Dayton	Toledo	Average Increase
				MARKET SHARE				
				Market				
	percent	percent	percent	percent	percent	percent	percent	percent
1950	33.0	19.2	28.8	28.5	36.8	30.8	21.6	——
1952	36.7	20.0	33.7	33.6	40.0	36.7	32.1	——
1954	39.0	25.9	34.3	37.5	43.1	36.8	31.4	——
1956	36.3	32.5	37.1	37.3	49.1	36.8	36.8	——
1958	52.9	32.6	37.3	42.4	51.5	39.2	40.9	——
1960	51.7	34.3	36 3	42.2	53.8	44.3	40.3	——
Relative Increase	56.7	78.6	26.0	48.1	46.2	43.8	86.6	55.1
				SALES				
				(Millions of Dollars)				
1950	36.9	7.1	42.8	121.7	46.6	36.4	32.6	——
1960	90.5	18.3	68.9	271.0	110.7	80.2	65.0	——
Percentage Increase	145	158	61	123	138	120	175	131

Source: Tables 4, 5, 8, 10, 12, 13, and 15

sellers in a given market; (2) It generally excludes the firms which have not made substantial inroads in a market (*i.e.*, those which as individuals do not significantly affect competitive behavior); and (3) Since other structure research efforts have made this category a convention, it allows direct comparison.[2]

Table 17 summarizes the observed patterns of structural change in the various Ohio markets. While the sales of the largest four firms (not necessarily the same firms each year) increased 131 percent on the average during the 1950-60 time period, aggregate market shares showed an average increase of 55.1 percent. Thus, a more than doubling of absolute firm size increased market shares by a much smaller increment since each market displayed considerable growth.

Although data presented in this study are insufficient to support broad generalizations concerning the competitive effects of the observed increase in concentration, the implication of theory is that the observed change in structure would affect market behavior, especially at the wholesale level.

[2]See especially Rosenbluth, G., "Measures of Concentration" Business Concentration and Price Policy (Princeton, N. J: Princeton University Press, 1955): and Adelman, M. A. "The Measurement of Industrial Concentration," Readings and Industrial Organization and Public Policy, (Homewood, Illinois: R. D. Irwin Inc., 1958).

APPENDIX: METHODOLOGY

Volume of sales is generally the best measure of total activity by firms whose primary function is selling to consumers. In the food industry, where technology differs among sellers, measurement of subsidiary phenomena, such as number of employees or number of check-out stands, does not give a reliable indication of market share or of market power. For this reason studies which have employed "rule-of-thumb" correlations between subsidiary data and total sales may be inaccurate. This study directly employs sales data.

I. The Relevant Market

A continuing problem associated with research into market structure is the question of empirically defining a relevant market. This operation must be done in a manner that will both allow economical and accurate data collection and provide useful conclusions.

In theory, markets have the dimensions of time, space, and product. Because of the continuity in both the merchandising and consumption of food the dimension of time is considered irrelevant. Changes in the structure of markets for food are gradual and the result of long-run adjustments. Biennial data used in this study are sufficient to represent these changes.

The product dimension of the market under study includes retail food store operations. Sales of non-food items by food stores typically constitute a minor portion of total sales and, since the Census of Business does not distinguish between food and non-food sales, the present study does not make this distinction. The definition of "food retailers", as employed by the Census of Business, includes groceries, bakeries, meat markets, confectionaries, and produce markets. Census analysis aggregates all of these classifications. The individual firms pertinent to this study are classified as grocers. Since these firms constitute about 90 percent of volume described by the Census, data pertaining to "food retailers" are employed in this analysis for obtaining total market sales volume. Such a classification excludes the operation of restaurants, which do not compete directly with food stores.

In urban areas, the spatial dimension of the market defies institutional definition.

1. Food purchases are generally confined to an area proximate to the residence of the consumer. In large, densely populated communities, there is no discernible breaking point between shopping areas except at the sparsely populated periphery.
2. Both independent and captive wholesale operations may serve a given retailer from a great distance, though local sources of supply predominate. In either case, considerable overlapping is noted.

3. The territorial organization of the competing firms are not identical. This is particularly true with respect to national and regional chains operating in different large cities located near one another. Radial considerations result in interior competition, but also mean large areas where competition takes place with managements based in distant cities and not necessarily operating in this interior.

For these reasons it can be seen that the institutional breakdown, which provided a good facsimile of a "relevant market" in case of the product dimension, does not provide a direct definition of the spatial boundaries of a single market. In this case, behavior similarities and differences must provide the clue to these boundaries. The activities of any single food retailer affect the activities of other food retailers in a given population center more directly than activities of food retailers in other areas. Since behavior (price behavior as well as product decisions, contract and service conventions) tends to be different from one metropolitan area to another for some agricultural commodities at the processor-food store level, the metropolitan area was chosen as the "relevant market".[3] The existence of some social and political boundaries within a densely populated area tends to modify economic homogeneity but not to the degree that physical distance over areas of sparse population make this modification. Furthermore, intra-market segmentation as a feature of management behavior is relatively insignificant. In the case of this study, then, Columbus and Worthington may be said to be elements in a single relevant market. Columbus and Dayton, however, are in different markets, as to lesser degree, are Akron and Cleveland.

While the "city zone" as defined by the Audit Bureau of Circulation conforms to the behavioral definition of a relevant market, historical data are generally unavailable on this area. Therefore, it was again necessary to use a Census of Business definition for one that would provide workable data. The "standard metropolitan area" appears to furnish a good approximation of the theoretical market.

The market areas chosen for this study were Akron, Canton, Cleveland, Cincinnati, Columbus, Dayton, and Toledo.[4] With the exception of Youngstown, these are all the very large population centers in Ohio. The use of so many study markets provides the opportunity

[3]The relevant market may be different for various commodities. Where actual price behavior has been observed, price behavior in one metropolitan area seems to be relatively independent of that in another area. See W. D. Eickhoff, Market Structure and Performance Relationships in the Ohio Fluid Milk Industry (Unpublished Ph. D. thesis, The Ohio State University, 1963).

[4]Data pertain to the Standard Metropolitan Area for all markets except Canton and Cincinnati. In these markets, data pertain to the area within the corporate limits of the city.

of observing sales concentration under differences in makeup and rate of growth of population and of local economy. Because of these differences, the results of the study may prove useful in the exploration of other urban markets.

II. Classification of Firms

Market share was accumulated with respect to the following segments of the food retailing industry in the market studied: largest four firms, all corporate chains, all multi-store firms, and all firms. "Largeness" here refers to rank according to sales volume among major corporate "grocers" only. Although voluntary groups, discount houses, and dairy stores doubtlessly are significant factors in some markets, they present special difficulties in gathering data. Voluntary groups are notorious for their member turnover. Food "discounters" and dairy stores are fairly recent in their importance, published operating data are not available, and managements are extremely reluctant to disclose them. Chains are defined as corporate "food retailers" operating four or more stores. Multi-store firms are defined as corporate "food retailers" operating two or more stores.

III. Sources of Data and Computation Method

The data employed in this study were gathered in a two-pronged effort. The number of stores and total sales volume for all multi-unit firms and all firms were obtained from the Census of Business of 1948, 1954, and 1958. These data were available for all chains in 1954 and 1958. Simple linear interpolation and extrapolation of the census totals provide the totals for the intercensal years. Multi-unit data in intercensal years were obtained by linear interpolation and extrapolation of the multi-unit data as percent of the totals. Chain data in intercensal years were obtained by linear interpolation and extrapolation of the census chain data as a percent of the multi-unit data.

The second prong of the collection effort concerned individual firms. In each market, experience and consultation with local authorities indicated five to seven firms which might possibly be among the largest four firms during the period studied. The enumeration of stores operated in each market by the concerned firms in each of the years under study was also done at this time. Street and telephone directories, grocery route lists, and other research studies were examined in the course of this enumeration. When conflicts among sources arose (assumed to result from time differences), the information dated nearest the middle of the calendar year was accepted. These data are presented in Tables 3, 6, 7, 9, 11, 14, and 16.

The next step was the assembly of operating data on the firms involved. The total number of stores operated by each firm and its total sales volume were desired. Where national or regional chains were involved, published sources[5] provided this information. When published information was not available on private corporations, the managements of these firms were contacted by letter and later by telephone. In a few instances, managements were unwilling or unable to give exact information. In these cases, however, they were willing to make estimates about their past operations.

Having gathered data on total sales volume and total number of stores operated by each firm and the number of stores operated by each firm in each market, it was possible to compute the market share accruing to each firm during the years considered. The first step was to compute average sales per store for each firm using total number of stores. Average sales were then multiplied by the number of stores in the market, thus giving total sales volume for each firm in the market. Relating this data to total food sales as reported by the Census of Business generates the market share percentages for each firm. Where better information was available, it was used. In every case the quantitative estimating procedure involved sales data only; that judged to be most accurate was employed. In most cases, however,

$$\frac{\dfrac{\text{Total Firm Sales}}{\text{Total Number of Stores}} \times \text{Number of Firm's Stores in Market}}{\text{Total Food Sales in Market}} = \text{Firm's Market Share}$$

was the estimating procedure for a given year. This process implies that the average store size of large chains is similar among metropolitan areas. Where mergers took place, the post-merger data were modified on the basis of pre-merger relationships among the parties involved.

Local firms and national or regional firms present very different problems with respect to the accuracy of the market share estimates reported in this study. The nature of the method of making inferences tends to render the estimate about smaller firms more accurate. This situation develops from the fact that, in general, samples tend to yield more reliable estimates as they represent a larger portion of the population.

[5]Moody's Industrial Manual, (New York: Moody's Investor's Service, 1951-1961), This Week Biennial Grocery Study, (New York: United Newspapers Magazine Corp., 1958, 1960).

Another possible source of error in the market share estimate is the interpolation and extrapolation of Census of Business data in order to determine aggregate sales and store figures for each market. The assumptions inherent in straight line interpolation techniques seldom correspond to the real world. Nevertheless, since even partial duplication of the investigating efforts of the Census was not an economical alternative in this study, straight line interpolation represents the most feasible method of estimating the data for intercensal years. These should be reasonably accurate within a short period of time.

In summary, with respect to the descriptive objectives of this study, the estimating procedures employed and the data generated should accurately portray the degree of seller concentration in those markets studied. The most important statistic generated here is the market share of a given collection of firms. Minor inaccuracies within this collection may not materially alter the picture.